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A NEW SPECIES OF *CINARA* WITH NOTES ON SOME WESTERN SPECIES OF APHIDAE

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It is now over a third of a century since Swain described the species considered here. Since that time the species have been removed from the genus *Lachnus* in which Swain placed them, and are now placed in the genus *Cinara*. Swain's original descriptions adequate for the time in which they were written, no longer suffice to distinguish his species from those described more recently from the same hosts, therefore new descriptions seem desirable.

Cinara hirsuta n. sp.

Length from vertex to end of anal plate 3.57 mm. Color notes from life not available. The specimens are cleared. Head and thorax light dusky-brown. Antennae light dusky, with apical regions slightly darker. Femora pale at base, with apical regions darker. Tibiae dark brown for a very short region near base, followed by a pale band, which in turn is followed by dark-brown which makes up more than half of tibiae. Tarsi dark brown. Cornicles brown. Spiracles within pigmented areas. Dorsum of abdomen posterior to cornicles with a few irregular shaped pigmented areas, these areas also vary in size, and none are very large.

Antennal segments with the following lengths: III .58 mm., IV .25 mm., V .30 mm., VI .14 + .04 mm. Secondary sensoria distributed as follows: III 0-1, IV 0, V 1, primary sensoria present on all these segments. Apical half of fifth segment and all of sixth segment lightly imbricated. Antennal hair numerous, long, about .114 mm. and fine, that on anterior margin of third segment more numerous than hair on posterior margin, set at an angle of about forty-five degrees. Hair on dorsum of head about .12 mm. in length fairly numerous, but none is present on the posterior region of head. Dorsal regions of first and second antennal segments with quite a few hair. Ocular tubercles present but small. Rostrum reaching to mid region of metathoracic coxae. Third and fourth segments of the rostrum about equal in length. Hind tibiae 2.71 mm. in length, provided with numerous fine long hair, set at an angle of about forty-five degrees. Hair on outer margin of hind tibiae more numerous than that on inner margin. First segment of hind tarsus with about eighteen hairs. Cornicles about .40 mm. across, provided with numerous fine hairs which for the most part are of two lengths .6 and .12 mm. Dorsum of abdomen with numerous fine long hairs, which are about as long as the longest on the cornicles. Transverse pigmented area anterior to cauda divided, with the posterior

region provided with numerous long fine hairs, the hairs being longer than those on the dorsum of the abdomen. Cauda broad and rather shallow.

This species shows some relationship to *Cinara pinea* (Mordvilko) but its abdomen is free from the numerous small brownish pigmented spots, the pigmented spots being confined to the region posterior to the cornicles, being fewer and somewhat larger than those found in this region in *pinea*. The antennae and tibiae also have more hair. The first segment of the hind tarsus is shorter.

Holotype apterous viviparous female, deposited in the collection of E. O. Essig. Taken on *Pinus monticola* 12 miles north of Kirby, Oregon, June 6, 1941, by J. Schuh.

Cinara taxifoliae (Swain)

Lachnus taxifolia Swain 1919, 13-14.

Lachnus taxifoliae Swain, Palmer, 1926: 304. Misidentification.

Cinara taxifoliae (Swain) Gillette and Palmer, 1931: 872. Misidentification.

Apterous viviparous female.

Length from vertex to end of anal plate varying from 2.97-2.23 mm. Length of antennal segments as follows: III .347-.371 mm., IV .157-.185 mm., V .17-.20 mm., VI .11 + .028-.042 mm. Width of cornicles .057 mm. Length of hair on dorsum of abdomen varying from .04-.085 mm. The long and short hair being intermixed. Length of hair on third antennal segment varying from .057-.071 mm. The longer and also coarser hairs are on the anterior margin of the segment. Length of metathoracic tibiae varying from 1.43-1.74 mm. Length of first segment of hind tarsis .143 mm. length of second segment .31 mm. Hair on antennae sparse, inclined at a nangle of about sixty degrees to more upstanding. There are no secondary sensoria. The primary sensoria on the third and fourth antennal segments are absent, that on the fifth segment is at the extreme end of segment, round and with a wide rim. Ocular tubercles well developed. Last three segments of the rostrum with the following lengths: .143, .128, .057 mm. The apical segment of the rostrum is rather broadly pointed. Hair on outer side of hind tibiae of two types, a longer much coarser type set at an angle of only slightly less than ninety degrees, and a type about half as long set at an angle of about forty-five degrees. On the inner margin of the tibiae the hairs are also of two types as to length but about of the same quality, on this side the hair are set at an angle of about forty-five degrees. The longest hair are but slightly longer than the width of the tibiae, on basal half of segment, and slightly longer towards the apex. The hair are also more numerous on the inner margin than they are on the outer margin of the tibiae. Ventral surface of first segment of hind tarsis with about twenty hairs. Mesosternal tubercle absent. Spiracles surrounded with small pigmented areas. Dorsum of abdomen with three rows of wax pore plates to a side, these are rather more lateral than dorsal. Dorsum of abdomen with numerous hair. Cornicles reduced to near rings, without pigmented base, about .057 mm. across. Transverse pigmented spots anterior to cauda divided, the inner ends rather far apart and fragmented into one or two spots.

Posterior margins of pigmented spots with five to six hairs, which are about .11 mm. in length. Cauda broadly rounded. Ventral plate broadly crescent-shaped with the ends blunt, the hair on this structure are few and confined to the ends.

Alate viviparous female.

Length varying from 2.60-3.14 mm. Antennal segments with following lengths: III .40-.42 mm., IV .171-.21 mm., V .185-.20 mm., VI .114-.143 mm. + .042 mm. Hind tibiae varying from 1.57-1.71 mm. Hind tarsi with following lengths: first segment .11 mm., second segment .328 mm. First tarsal segment with about eighteen hairs. Last three segments of the rostrum with the following lengths: .157, .114, .071 mm. Third antennal segment with 4-5 secondary sensoria, these are confined to one side of the segment, and are arranged in a straight row, all are rather tuberculate. Fourth and fifth antennal segments without secondary sensoria. Side of third antennal segment with secondary sensoria free from hair. Hair on this segment about .071 mm. in length, or slightly more than two times width of segment, hair not numerous, set at an angle of about sixty degrees. Media of fore wings twice branched, the second branch being closer to the margin of the wing than to the first. Dorsum of abdomen much like that of apterous viviparous female, differing from that form in having the transverse pigmented spots fragmented for their entire length into spots each provided with a single long sharp pointed hair. Hair on outer margin of hind tibiae about .143 mm. in length, or about twice the width of the segment, for the longest, shorter hair from a third to a half as long. Hair on inner margin of tibiae more numerous, more inclined and the longest less spine-like.

Described from four original slides, containing three apterous and three alate specimens, taken by Essig on Douglas fir *Pseudotsuga taxifolia*, in Capital Park, Sacramento, California, Aug. 15, 1912. One slide remounted by Essig in 1942, and in the Essig collection, is indicated as Lectotype, the apterous viviparous female on the same slide is indicated as the morphotype.

The ring-like cornicles, with no pigment at the base, distinguish this species at once from all other species of *Cinara* taken on *Pseudotsuga*. Apparently it has not been taken since Essig first took it in 1912.

Cinara arizonica (Wilson)

Lachnus sabiniansus Swain New Synonymy.

We have been able to locate only two of the original cotype slides, of *Lachnus sabiniansus* Swain both in the Essig collection. Neither of the slides is in good condition, but the slide on which two apterous viviparous females are mounted is the more useable, and is here indicated as the lectotype. All three specimens are practically free from hair, the hair having been lost for the most part in bringing the specimens to their present condition of useability by clearing and remounting.

Cinara abieticola (Cholodkovsky)

Lachnus vanduzeei Swain New synonymy.

Dilachnus piceae (Walker) Swain 1921 Misidentification, of *Lachnus vanduzeei* Swain.

Cinaropsis pruinosa (Hartig) Börner 1952 Misidentification, of *Lachnus vanduzeei* Swain.

Cinara abieticola (Chol.) is reported from the United States under this name for the first time. Our determination has been checked by specimens sent by Dr. D. Hille Ris Lambers. The host of this species in Europe is *Abies* sp. on which host it has been taken in Golden Gate Park, San Francisco. We also have specimens of this species taken on *Cedrus deodara* on the campus of the University of California at Berkeley. *Cedrus* is an introduced genus of cedar to the United States. To these host species we can now add *Picea* on which host Van Duzee took the type material, which Swain described and named *Lachnus vanduzeei*. The material taken by Van Duzee consisted of two alates and nine apterae. These were mounted on five slides by Essig, of these three were indicated as cotypes by Essig and two by Swain. We have not been able to locate the slides kept by Swain. Swain mentions other specimens taken by Essig. They are not in the Essig collection.

Cinara ferrisi (Swain)

Cinara chamberlini Knowlton New synonymy.

Alate viviparous female.

Length from vertex to end of anal plate varying from 4.29-5.07 mm. Width of head through the eyes about .886 mm. Length of antennal segments as follows: III 1.11-1.14 mm., IV .486-.514 mm., V .486-.529 mm., VI .143-.185 + .028-.057 mm. Secondary sensoria distributed as follows: III 13-17, IV 2-4 as rule four, V 1-2. The third antennal segment has the primary sensorium quite similar to the secondary, on this segment the secondary sensoria are large and are arranged in a straight row. The secondary sensoria are very tuberculate. On the side of the segment provided with sensoria there are almost no hair. Antennal hair fairly numerous inclined at an angle of about forty-five degrees. In length these hair vary from about .071-.085 mm. or at a ratio of 5-4 to the width of the segment. First and second antennal segments longer than normal, also with more numerous hairs. Median tubercle on head large. Eyes with well developed ocular tubercles. Head with median suture with a row of hairs on each side, adjacent area free from hair except at anterior margin, hair present median to eyes. Last three segments of the rostrum with the following lengths: .34, .24, .08 mm. sometimes reaching end of abdomen; sometimes extending only to end of cornicles. Prothorax with a partial median suture. Lateral lobes of thorax with hair on median portions, lateral portions free from hair. Median posterior lobe of thorax with many hairs. Forewings large, media with two branches, second branch closer to margin of wing than to first. Stigma extending rather far beyond origin of radial sector. Hind femora 2.93 mm. Hind tibiae 5.58 mm. Hair on hind tibiae numerous about .114 mm in length or about as long as the width of the segment, inclined at an angle of about forty-five degrees. Hair on inner and outer margins about the same in length, quality and number. Hind tarsal segments with the following lengths: .157 mm., .40 mm. First tarsal segment with about twenty-two hairs on the ventral surface. Mesosternal tubercle absent. Dorsum of abdomen with numerous hairs which vary from .10-.114 mm. in length. Base of cornicles about .347

mm. Cornicles rather high for width of base, the height being about .286 mm. Anal plate but little wider than cauda and about as long.

Apterous viviparous female.

Length from vertex to end of anal plate 4.36 mm. Width of head through the eyes 1.08 mm. Antennal segments with the following lengths: III 1.07 mm., IV .50 mm., V .429 mm., VI .157 + .042 mm. Secondary sensoria distributed as follows: III 7-8, IV 4, V 1. Primary sensoria on segments three and four similar to secondary, primary sensorium on fourth segment far removed from apex. On the third segment the sensoria are arranged in a straight row and are located on the apical half of the segment. Primary sensorium of fifth segment very large. Antennal hair similar to those of alate viviparous female. Rostrum reaching just to anterior portion of the cornicles, last three segments with the following lengths: .347, .24, .10 mm. Cornicles with base measuring .347 mm. in shape similar to those of alate viviparous female. Hind tibiae 5.58 mm. long. First segment of hind tarsis .17 mm., second segment of hind tarsis .28 mm. A mesosternal tubercle is present.

In his original description of this species, Swain mentions and lists *Lachnus abietis* Fitch as determined and reported by Davidson in 1909 and 1910, as a synonym of *Lachnus ferrisi*. Davidson's material can not be located. It is not in the collection of the National Museum, nor in the collections of the California Academy, or Stanford University. We have seen three slides of apterous viviparous females, determined as *ferrisi* taken by Ferris on *Abies cilicica* Oct. 21, 1916 at Stanford University. These slides are not indicated as cotypes, but may well have been seen by Swain, prior to the publication of the description of this species. The specimens on these slides are all *Cinara curvipes* (Patch). Therefore the possibility is quite strong that the *Lachnus abietis* Fitch as determined by Davidson, is *Cinara curvipes* (Patch). This supposition is further strengthened by the fact that *Cinara pilicornis* (Hartig) has not been reported from the Pacific Coast. Swain however, did not describe the apterous viviparous female of *ferrisi* from specimens of *curvipes*, but from material which agreed with the alate specimens he called *ferrisi*.

Wilson 1923 lists *Lachnus abietis* Fitch as a synonym of *Dilachnus pinicola* (Kaltenbach). Kaltenbach's species is a junior synonym of the species described by Hartig. Fitch's type is in the United States National Museum.

At our request Miss Louise M. Russell has kindly compared the Fitch type (viviparous females in poor condition), with specimens of *Cinara curvipes* and *Cinara pilicornis* and reports that the species described by Fitch is similar to *pilicornis*, but distinct from it. For this information full credit is due to Miss Russell.

Lectotype, alate viviparous female in the Essig collection. Morphotype apterous viviparous female in the Natural History Museum of Stanford University.